WHAT IS CLAIMED IS:

1. A kit for identifying at least one polypeptide having a desired activity for a ligand of interest, containing:

(i) at least one plurality of active addressable polypeptide variants, wherein each member of each plurality of the active polypeptide variants reacts with at least one ligand to produce a detectable signal, and wherein at least two members of each plurality of the active polypeptide variants are related to a parent polypeptide and react with different ligands, wherein the different ligand does not react with the parent polypeptide;

(ii) at least one ligand, wherein said ligand is placed within the wells of a microtiter plate;

and

(iii) instructions for use.

2. The kit of Claim 1, wherein said at least one ligand is immobilized in the wells of said microtiter plate.

~~3. The kit of Claim 1, wherein each of the wells of said microtiter plate contain different ligands.~~

43. A kit for identifying at least one polypeptide having a desired activity for a ligand of interest, containing:

(i) at least one plurality of active addressable polypeptide variants, wherein each member of each plurality of the active polypeptide variants reacts with at least one ligand to produce a detectable signal, and wherein at least two members of each plurality of the active polypeptide variants are related to a parent polypeptide and react with different ligands, wherein the different ligand does not react with the parent polypeptide wherein each member of said plurality of active polypeptide variants is placed within a well of a microtiter plate;

(ii) at least one ligand;

and

(iii) instructions for use.

~~5~~4. The kit of Claim 43, wherein each member of said plurality of polypeptide variants is immobilized in the wells of said microtiter plate.

~~6~~5. The kit of Claim 43, wherein at least two members of each plurality of active addressable polypeptide variants are related to a parent polypeptide and react with differing levels of activity upon said at least one ligand.

~~7~~6. The kit of Claim 43, further comprising at least one means of generating a signal.

~~8~~7. The kit of Claim ~~8~~6, further comprising at least one means of detecting said signal.

~~9~~8. The kit of Claim 1, wherein the plurality of active addressable polypeptide variants are operable under conditions in which the parent polypeptide is inactive or rendered inactive.

~~10~~9. The kit of Claim 43, wherein the plurality of active addressable polypeptide variants are operable under conditions in which the parent polypeptide is inactive or rendered inactive.

~~11~~10. The kit of Claim 1, wherein the plurality of active addressable polypeptide variants are enzymes, and the ligands correspond to substrates for the enzymes.

~~12~~11. The kit of Claim 43, wherein the plurality of active addressable polypeptide variants are enzymes, and the ligands correspond to substrates for the enzymes.

~~13~~12. The kit of Claim 1, wherein the parent polypeptide is a wild-type enzyme.

~~14~~13. The kit of Claim 43, wherein the parent polypeptide is a wild-type enzyme.

~~15~~14. A kit for identifying at least one polypeptide having a desired activity for a ligand of interest, containing:

(i) at least one plurality of active addressable polypeptide variants, wherein

each member of the plurality of active addressable polypeptide variants reacts with at least one ligand of a plurality of ligands and at least two members of the plurality of the active addressable polypeptide variants are related to a parent polypeptide, wherein one member has been selected for improved activity for one ligand and the other member has been selected for improved activity for a different ligand in the plurality of ligands as compared to the parent polypeptide;

(ii) a plurality of ligands;

and

(ii) instructions for use.